

# REAL Alternatives for LIFE

- a Train-the Trainer – program for Low-GWP-refrigerants

CC-Iran - Karsten Beermann, IKKE gGmbH

Multilingual programme will cover 14 + languages



With contribution of the LIFE programme of the European Union

REALAlternatives4LIFE.eu



# Project website

## www.realalternatives4life.eu

- Multi-lingual website (13 languages)
- Free guides (download learning materials)
- E-library of additional resources
- E-learning link to register
- Sign up for newsletters
- See latest news and events

REAL Alternatives  
BLENDED LEARNING FOR ALTERNATIVE REFRIGERANTS

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Language: English (UK)

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**EVENTS**

- Training event at UK HFO conference 4 September 2018  
[see full events list](#)

**NEWS**

- REAL Alternatives 4 LIFE to hold events on 16 May 2018
- Survey On Low-Charge Ammonia 17 April 2018
- Program szkoleń Real Alternatives 4 LIFE 12 April 2018
- REAL Alternatives 4 LIFE in Milan 15 March 2018
- EU F-Gas Consultation Forum talk 14 March 2018  
[see full news list](#)

Tweets by @REAL\_Alts\_EU

REALAlternatives Retweeted

Stephen Gill @Stephencgill  
#worldrefrigerationday #worldrachpday June 26th. This year and every year. #refrigeration #hvac #heatpumps twitter.com/graememurrayfo...

Jun 26, 2018

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# REAL Alternative Learning Modules

9 booklets now available to download for free as study aids and e-learning (13 languages)

Programme Modules now available at <a href="http://www.realalternatives.eu">www.realalternatives.eu</a>	
1	Introduction to Alternative Refrigerants - safety, efficiency, reliability and good practice
2	Safety and Risk Management <b>(NEW!)</b>
3	System design using alternative refrigerants
4	Containment and leak detection of alternative refrigerants
5	Maintenance and repair of alternative refrigerant systems
6	Retrofitting with low GWP refrigerants
7	Checklist of legal obligations when working with alternative refrigerants
8	Measuring the financial and environmental impact of leakage
9	Tools and guidance for conducting site surveys



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# E-learning covering all 9 modules in English and more languages

**Introduction to Module 1**

This e-learning Module (no 1 of 8) gives an introduction to currently available alternatives to high GWP refrigerants.

Once you have completed Module 1 you will be able to access all of the remaining e-learning Modules.

### Aim of Module 1

In this Module we will provide a general introduction to the different alternatives to high global warming potential (GWP) hydro fluoro carbon (HFC) refrigerants and compare their properties, performance, safety issues, environmental impact and ease of use. These refrigerants are used in new, specially designed systems – they are rarely suitable to replace refrigerants in existing systems.

The main alternatives have low to zero GWP, but it is important that a refrigerant is not selected on the basis of low GWP alone; other characteristics should be taken into account such as:

- Operating pressures;
- Performance – capacity and efficiency;
- Material compatibility, including compressor lubricant;
- Safety, including flammability and toxicity;
- Temperature glide;
- Ease of use and skill level of design engineers and technicians who install, service and maintain equipment.

This is useful reference material for anyone working in the refrigeration, air conditioning and heat pump (RACHP) industry. It assumes you already have knowledge of RACHP systems which use HFC refrigerants.

### Extra Information about Standards

To avoid copyright infringement no part of International, European or National standards has been

**Módulo 2 - Diseño de sistemas con ...**

15%

### La baja temperatura crítica del R744 se traduce en diferencias en la totalidad del diseño del sistema. El refrigerante R744 se utiliza en los siguientes tipos de sistemas:

- Sistemas transcriticals: Estos sistemas funcionan por encima de la temperatura crítica en la zona de alta presión parte o la totalidad del tiempo. En estos sistemas el calor se desprende del R744 al aire ambiente, de



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Sign up for updates at the Project website (multilingual)

[www.realalternatives4life.eu](http://www.realalternatives4life.eu)

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European project to develop blended learning resources for alternative refrigerants covering carbon dioxide, hydrocarbon, ammonia and HFOs



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**EVENTS**  
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hydrocarbons21.com @hydrocarbons21 .@centrogalileo received a #Chinese delegation of 18 professors for a #training course on #ecofriendly refrigerants hydrocarbons21.com/articles/7773/...

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